

REMARKS

Claims 18 to 34 are pending in the application.

Specification

The title of the invention has been objected to as being too long. The title has been shortened.

Claim Objections

Claim 21 is objected to because examiner is of the opinion that a misspelled word is contained. It is respectfully submitted that the word "temporally" is correct. See attached copy of *Merriam Webster* online dictionary providing definitions of the word (see definition 3a, 3b).

Rejection under 35 U.S.C. 102

Claims 18-20, 23-37, 33-34 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Benz et al. (US 5,656,209)*.

In the method according to the invention, the melted plastic mass (41), pre-shaped as a sheet, is guided into a roller gap (31) of a calender. The roller gap (31) is formed between a shaping engraving cylinder roller (11) and a smoothing strip (29) surrounding partially the shaping engraving cylinder roller (11), wherein the roller gap extends circumferentially partially about the engraving cylinder roller. The shaping engraving surface of the cylinder roller is heated to melting temperature at an intake of the roller gap (31), wherein the melted plastic mass (41) is applied directly onto the shaping engraving surface of the heated cylinder roller (11). A profiling is provided by cooling the melted plastic mass (41) in the roller gap (31) downstream of the intake by heat removal on a side of the plastic material facing the shaping engraving surface.

One important feature according to claim 18 is that the roller gap is formed between the engraving cylinder roller and the smoothing strip surrounding partially circumferentially the cylinder roller as shown in Fig. 5 (gap formed between parts 11 and 29). As shown in Figs. 5-12, the plastic mass is guided between the strip 29 and the roller 11 about a length of approximately half the circumference of the roller 11. The strip 29 is pressed against the plastic mass by means of the pressure strip 30 circulating about the rollers 13, 20, 12.

The cited prior art reference *Benz et al.* shows a roller arrangement 4, 5, 4' having a nip 6 between the roller 4 and 5 where the extruded plate is embossed by the negative of the plate surface provided on the central roller 5. There is no smoothing strip, only the arrangement of three rollers. There is no circumferential gap between the central roller (cylinder roller) and the strip that extends about the circumference of the cylinder roller. The two rollers 4 and 5 define a nip 6 (according to *Merriam Webster* online dictionary, a nip is the closest region between two rolls or jaws of a squeezing device; see attached copy); a nip cannot suggest a circumferentially extending gap between a roller and a strip circumferentially surrounding the roller.

The present invention further sets forth the steps of **heating the engraving surface at the intake of the roller gap and of cooling downstream of the intake the side of the plastic material facing the engraving surface.**

The examiner argues that *Benz et al.* shows heating (col. 3, lines 10-15) as well as cooling since the rollers are arranged in an open air environment.

Applicant respectfully disagrees with examiner's assessment. The prior art *Benz et al.* teaches that the entire roller is heated and not that a particular area of the roller is heated. In particular, it is not disclosed that the intake of the roller gap is heated.

Aside from the open air environment mentioned by the examiner, there is no evidence of any type of cooling of the arrangement. According to instant claim 18, cooling takes place at the side of the plastic material facing the engraving surface. The open air environment of *Benz et al.* can act only on the side of the plastic material facing away from the engraving surface while the side of the plastic material facing the engraving surface, as evidenced by the disclosure of col. 3, lines 10-15, of *Benz et al.*, is exposed to the **heated engraving roller**. Therefore, cooling of the side of the plastic material facing the engraving surface is not anticipated or obvious in view of the cited prior art reference.

Claim 18 is therefore not anticipated or obvious in view of *Benz et al.*

According to claim 19, the heat removal is carried out in a controlled fashion along the path of the melted plastic mass (41) about the cylinder roller (11) such that **on the side of the solidifying melted plastic mass facing the shaping engraving surface more heat is removed than on the smooth side facing the smoothing strip (29)** and the

melted plastic mass is hardened in top edges (4) of prisms of the profiling before the material strip exits from an exit gap (39) of the calender as a finished product (19).

As pointed out above in connection with claim 18, *Benz et al.* teaches that the roller 5 and thus the engraving surface is **heated** so that no heat removal can take place on the side of the plastic material facing the engraving surface. Contrary to examiner's position, heat removal by open air environment can only take place at the **side facing away from the engraving surface**. Therefore, the feature of claim 19, according to which more heat is removed on the side facing the engraving surface than on the smooth side, is not anticipated or obvious. This, claim 19 is not anticipated or obvious in view of *Benz et al.*

In regard to claim 25, the arguments presented above in connection with claim 18 apply here as well. In particular, *Benz et al.* does not show a smoothing strip that extends circumferentially about the cylinder roller and defines together with the cylinder roller a circumferentially extending roller gap. Claim 25 is therefore not anticipated or obvious in view of *Benz et al.*

In regard to claim 27, it is respectfully submitted that the axis of rotation of the exit roller (13) being displaceable for changing a surrounding stretch of the smoothing strip (29) is not anticipated or obvious by *Benz et al.* *Benz et al.* does not have a smoothing strip and, therefore, there is no reason or incentive to move the exit roller 4' for changing the surrounding stretch of the smoothing strip extending about the roller 5. Claim 27 is therefore not anticipated or obvious in view of *Benz et al.*

In regard to claim 34, the same arguments as presented in regard to claim 18 apply here as well. Moreover, the prior art discloses nothing more than an extruder as a means for supplying the plastic material to the nip of the rollers; a heating cover as claimed that melts and supplies the melted plastic material directly to the roller gap is not disclosed or suggested. Claim 34 is therefore not anticipated or obvious in view of *Benz et al.*

Reconsideration and withdrawal of the rejection of claims 18-20, 23-37, 33-34 under 35 USC 102(b) are therefore respectfully requested.

Rejection under 35 U.S.C. 103

Claim 21 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Benz et al.* (US 5,656,209) in view of *Wheatley et al.* (US 5,235,729).

The examiner argues that *Wheatley et al.* shows that it is known to carry out a method of making a film where the melting temperature is present not within the entire rotating mass of the cylinder roller but only within a stationary heating zone. The prior art *Wheatley et al.* does not show making a film by using a cylinder roller so that there is no disclosure in regard to having a stationary heating zone on a cylinder roller where the melting temperature is present. As discussed above, the prior art *Benz et al.* teaches that the entire cylinder roller is to be heated. Therefore, the first feature of claim 21 is not obvious in view of the combined teachings of the two references.

The examiner further argues that providing a cooling device and passing the melted plastic mass through the cooling device after the introduction into the roller gap is obvious when combining the teaching of *Wheatley et al.* and *Benz et al.* The claim 21 defines that the cooling device is part of the cylinder roller or is arranged external to the cylinder roller where the smoothing strip surrounds partially circumferentially the cylinder roller. The cooling means (rollers 30, 31) of Fig. 2 of *Wheatley et al.* are arranged downstream of a shaping die 22 where they are positioned on opposing sides of the extruded body. They cannot be provided inside a cylinder roller; such an arrangement would not make sense since the material to be cooled must pass through them. They also cannot be provided on the side of a smoothing strip surrounding partially circumferentially the cylinder roller since the material must pass through them.

Claim 21 is therefore not obvious in view of the two prior art references.

Claims 22, 28, 31, 32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Benz et al.* in view of *Ferguson et al.* (US 5,122,212). The claims 22, 28, 31, 32 are believed to be allowable as dependent claims of claims 18 and 25, respectively.

Claim 29 (the examiner erroneously refers to claim 27 but the rejection relates to a cooling table which is the subject matter of claim 29) stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Benz et al.* (US 5,656,209) in view of *Djordjevic et al.* (US 4,753,587). The claim 29 is believed to be allowable as a dependent claim of claim 25.

Claim 30 stands rejected under 35 U.S.C. 103(a) as being unpatentable over *Benz et al.* (US 5,656,209) in view of *Wenzel et al.* (US 6,129,652).

Wenzel et al. shows cooling air lines extending through a support cylinder 3

mounted on a base member 2. The support cylinder 3 is comprised of several disks 9 having conduits 11; their arrangement is shown in Fig. 2. Instead of extending parallel to the center axis, the conduits 111 can extend helically (Fig. 4). The coolant is air that is forced through the conduits by fan 12. There are no cooling water supply line or cooling water removal line arranged in a roller axle; the conduits are located within the outer shell of the roller. There is no spray nozzle arrangement. There is no collection of cooling water sprayed by the spray nozzle arrangement in the interior of the cylinder roller; the interior is solid (see Fig. 2). There is no suction pipe for removing sprayed and collected cooling water. Claim 30 is therefore not obvious in view of the cited prior art references.

Reconsideration and withdrawal of the rejections under 35 USC 103(a) are respectfully requested.

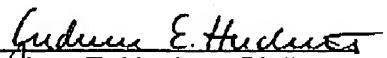
CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or e-mail from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on June 28, 2004,


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GEH

Encl.: copy of *Merriam Webster* entry "temporal"; copy of *Merriam Webster* entry "nip"

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6/28/04: Amd for Ser. No. 10/088,003 - Inventor(s): Peter Nawrath - Filing Date: 3/11/2002



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nip[1,verb]
 nip[2,noun]
 nip[3,noun]
 nip[4,intransitive verb]
 nip and tuck
 nip-up



Main Entry: ²**nip**

Function: *noun*

1 : something that nips: as a *archaic* : a sharp biting comment b : a sharp stinging cold <a *nip* in the air> c : a biting or pungent flavor : *TANG* <cheese with a *nip*>
 2 : the act of nipping : *PINCH, BITE*
 3 : the region of a squeezing or crushing device (as a calender) where the rolls or jaws are closest together
 4 : a small portion

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temporal[1,adjective]
 temporal[2,noun]
 temporal[3,adjective]
 temporal bone
 temporal lobe
 temporal summation



temporal

Main Entry: **1tem·po·ral**
 Pronunciation: 'tem-pôr(äl) r&l

Function: *adjective*

Etymology: Middle English, from Latin *temporalis*, from *tempor-*, *tempus* time

1 a : of or relating to time as opposed to eternity b : of or relating to earthly life c : lay or secular rather than clerical or sacred : CIVIL <lords *temporal*>

2 : of or relating to grammatical tense or a distinction of time

3 a : of or relating to time as distinguished from space b : of or relating to the sequence of time or to a particular time : **CHRONOLOGICAL**
 - *temporally* *adverb*

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